

CLAIMS

1. Internal combustion engine comprising a variable valve drive device provided with at least one camshaft with at least one cam arrangement, which comprises a cam which is movable essentially radially relative to the camshaft, and at least one, preferentially two, base circle disk(s) fixed on the camshaft, **characterized in that** the cam is actuated by an adjusting element located at the side of the camshaft.
2. Internal combustion engine, in particular as in claim 1, **characterized in that** the cam is brought from an inactive position to a lifting position by the adjusting element prior to or during a lifting phase.
3. Internal combustion engine, in particular as in claim 1 or 2, **characterized in that** the cam which is movable on the camshaft in essentially radial direction is held against the camshaft in the opposite direction of the lifting position by a spring element and can be retracted to its inactive position after the lifting phase by the spring element, the cam in its inactive position being preferably within the base circle of the base circle disk.
4. Internal combustion engine, in particular as in one of claims 1 to 3, **characterized in that** the cam is borne by sliding surfaces on circular guiding surfaces of the camshaft.
5. Internal combustion engine, in particular as in one of claims 1 to 4, **characterized in that** the cam comprises two parts, a first part, which is actuated by the adjusting element, being essentially fork-shaped as seen from the side and gripping a second part forming the cam lobe, and first and second part preferably being held together by pins.
6. Internal combustion engine, in particular as in one of claims 1 to 5, **characterized in that** the adjusting element has at least one working surface, which interacts with a corresponding mating surface on the first part of the cam.

7. Internal combustion engine, in particular as in claim 6, **characterized in that** the adjusting element has an essentially U-shaped cross-section with the two legs of the U as working surfaces, the legs having a distance from each other which is greater than the width of the second part of the cam.
8. Internal combustion engine, in particular as in one of claims 6 or 7, **characterized in that** the adjusting element is configured as an actuating roller, which actuating roller has a flange-like rim serving as the working surface.
9. Internal combustion engine, in particular as in one of claims 5 to 8, **characterized in that** at least one base circle disk has a radial groove into which a pin can be inserted, the grooves of one base circle preferably being displaced relative to those of the other base circle disk.
10. Internal combustion engine, in particular as in one of claims 1 to 9, **characterized in that** at least one base circle disk has a ramp-shaped elevation, which together with the cam lobe of the second part of the cam defines the lift curve of at least one gas exchange valve.
11. Internal combustion engine, in particular as in one of claims 1 to 9, **characterized in that** the mating surface of the first part of the cam deviates from a strictly cylindrical shape and defines a control surface, such that the valve lift curve of the corresponding gas exchange valve is generated by the shape of the control surface of the first part and the shape of the cam lobe of the second part of the cam.
12. Internal combustion engine, in particular as in one of claims 1 to 10, **characterized in that** the control surface and the cam lobe of the cam are shaped in such a way that the valve lift curve is continuous, especially in the region of transition between the base circle of the base circle disks and the cam lobe of the cam.
13. A method of operating an internal combustion engine, in particular a diesel internal combustion engine, with fully variable valve drive, **characterized in that** the opening time of the inlet valve is shifted to "late" or the closing

time of the inlet valve is shifted to "early" during the start-up phase and/or during operating phases with low compression ratio.